

REMARKS

Claims 1, 3-12, 17, 18 and 20 are pending in this application. By this Amendment, Applicants amend claim 12.

Claims 1 and 3-11 were rejected under 35 U.S.C. 103(a) as being unpatentable over JP 8-306570 ('570) in view of JP 63-79306 ('306) and Masuda (JP 8-250333). Further, claims 12, 17 and 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Mamada et al. (U.S. 5,692,290) in view of Shafer et al. (U.S. 6,204,744). And claim 18 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Mamada et al. (U.S. 5,692,290) in view of Shafer et al. (U.S. 6,204,744) and further in view of Masuda (JP 8-250333). Applicants respectfully traverse these rejections.

Claim 1 recites:

“a block made of at least either resin or rubber having a magnetic material dispersed therein, external electrodes being provided on said block; and

a plurality of coils buried in said block, end portions of each of the plurality of coils being electrically connected to said external electrodes; wherein

each of the plurality of coils has different electrical characteristics.” (Emphasis added)

The Examiner acknowledged that neither JP '570 nor JP '306 teaches or suggests a plurality of coils, each of which has different electrical characteristics. However, the Examiner alleged that Masuda teaches “an inductor array [10], a plurality of inductive elements [11, 12, 13] disposed within a magnetic body, wherein the inductive elements have different electrical characteristics.” And thus, the Examiner concluded that it would have been obvious to “vary the electrical characteristics of the inductive coils in JP '570, as modified, as suggested by Masuda, for the purpose of controlling inductance output.” Applicants respectfully disagree.

In contrast to Applicants' claimed invention, Masuda teaches that “the flows of

magnetic flux of the inductors 11, 12, and 13 are not coincident with each other in direction, and as a result the inductors 11, 12, and 13 are hardly magnetically coupled", see "Constitution" portion of the English language Abstract of Masuda. Thus, contrary to the Examiner's allegation, although the orientation of each of the inductors 11, 12 and 13 is different, Masuda clearly fails to teach or suggest that "each of the plurality of coils has different electrical characteristics" as recited in claim 1 of the present application.

Further, Masuda teaches a multi-layered inductor which is made of a plurality of ceramic green sheets 10a on which conductive patterns 10d are provided. Thus, contrary to the Examiner's allegation, Masuda clearly fails to teach or suggest a magnetic body, but rather merely teaches a multi-layered inductor including ceramic green sheets. Thus, Masuda fails to teach or suggest an inductor including a plurality of wound coils which are buried in a block made of resin or rubber. And further, Masuda clearly fails to teach or suggest that the configuration and arrangement of elements disclosed therein could or should be used in an inductor including wound coils.

Additionally, in contrast to the inductor including a plurality of wound coils buried in a block made of resin or rubber as recited in claim 1 of the present application, the multi-layered inductor of Masuda, which is made of a plurality of ceramic green sheets on which conducting patterns are provided, does not have a large current capacity.

JP '570 and JP '306 teach inductors having completely different configurations and elements than Masuda. Particularly, both JP '570 and JP '306 teach wound coils which are buried in a block. The wound coils of JP '570 are wound around axes that extend in a direction parallel to one another. In contrast, the axes of the inductor 11, 12 and 13 of Masuda are perpendicular to one another such that the flows of magnetic flux of the inductors 11, 12, and 13 are not coincident with each other. Due to the shape of the wound coils of JP '570, the wound coils could not be configured such that the axes thereof are perpendicular to one another, and JP'570 clearly fails to teach or suggest that the wound coils 11, 12 and 13 could or should be configured such that the axes thereof are perpendicular to one another.

Therefore, Applicants respectfully submit that there would have clearly been no motivation to combine the teachings of Masuda with either JP '570 or JP '306. Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination. In re Geiger, 815 F.2d 686, 2 USPQ 1276, 1278 (Fed. Cir. 1987). The Examiner has failed to establish a prima facie case of obviousness since the references offer no suggestion of the claimed combination. See In re Nielson, 816 F.2d 1567, 2 USPQ 2d 1525, 1528 (Fed. Cir. 1987).

Accordingly, Applicants respectfully submit that JP '570, JP '306 and Masuda, taken individually or in combination, fail to teach or suggest the unique combination and arrangement of elements recited in claim 1 of the present application.

Claim 12 has been amended to recite:

“a block made of at least either resin or rubber having a magnetic material dispersed therein;
a plurality of external electrodes provided on said block; and
at least one spirally-wound parallel wire line buried in said block and including a plurality of electromagnetically close-coupled coils, the plurality of electromagnetically close-coupled coils being wound around a single coil axis and defined by insulation-coated conductors; wherein
ends of one of said plurality of electromagnetically close-coupled coils are connected to a first pair of said plurality of external electrodes, and ends of another of said plurality of electromagnetically close-coupled coils are connected to a second pair of said plurality of external electrodes.” (Emphasis added)

In contrast, Mamada teaches a plurality of spirally wound conductive wires 1a-1d wound about a single coil axis, wherein each of the plurality of conductive wires 1a-1d are connected to a single pair of external electrodes 3. Mamada clearly fails to teach or suggest a first and second pair of external electrodes, and certainly fails to teach or suggest “ends of one of said plurality of electromagnetically close-coupled coils are connected to a first pair of said plurality of external electrodes, and ends of another of

said plurality of electromagnetically close-coupled coils are connected to a second pair of said plurality of external electrodes" as recited in claim 12 of the present application.

Shafer is relied upon merely to teach an insulated wire. Shafer clearly fails to teach or suggest "at least one spirally-wound parallel wire line buried in said block and including a plurality of electromagnetically close-coupled coils", and certainly fails to teach or suggest "ends of one of said plurality of electromagnetically close-coupled coils are connected to a first pair of said plurality of external electrodes, and ends of another of said plurality of electromagnetically close-coupled coils are connected to a second pair of said plurality of external electrodes" as recited in claim 12 of the present application.

Accordingly, Applicants respectfully submit that Mamada and Shafer, taken individually or in combination fail to teach or suggest the unique combination and arrangement of elements recited in claim 12 of the present application.

In view of the foregoing Amendments to the Claims and Remarks, Applicants respectfully submit that Claims 1 and 12 are allowable over the prior art for the reasons described above. Claims 3-11 and claims 17, 18 and 20 are dependent upon claims 1 and 12, respectively, and are therefore allowable for at least the reasons that claims 1 and 12 are allowable.

In view of the foregoing Remarks, Applicants respectfully submit that this application is in condition for allowance. Favorable consideration and prompt allowance are respectfully solicited.

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The Commissioner is authorized to charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. **50-1353**.

Respectfully submitted,


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March 20, 2002

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VERSION WITH MARKINGS SHOWING CHANGES MADE

12. A composite inductor element comprising:
a block made of at least either resin or rubber having a magnetic material dispersed therein;
a plurality of external electrodes provided on said block; and
at least one spirally-wound parallel wire line buried in said block and including a plurality of electromagnetically close-coupled coils, the plurality of electromagnetically close-coupled coils being wound around a single coil axis and defined by insulation-coated conductors; wherein
ends of one of said plurality of electromagnetically close-coupled coils are connected to a first pair of said plurality of external electrodes, and ends of another of said plurality of electromagnetically close-coupled coils are connected to a second pair of said plurality of external electrodes.